METHOD FOR PRODUCING COMPOSITE STRUCTURE ~~AND COMPOSITE STRUCTURE PRODUCED THEREBY~~

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BACKGROUND OF THE INVENTION

The present invention relates to a method for producing a composite structure having a three-dimensionally curved portion and a cylindrical portion, and to a composite structure produced thereby.

Composite prepregs are light in weight and high in strength, so that they have been widely used as a material for automobiles, ships, aircrafts, etc. Aircrafts using the composite prepreg generally contain a composite structure having a three-dimensionally curved portion and a cylindrical portion. Such a composite structure is usually composed of a honeycomb sandwich panel or a stiffened panel.

The composite structures composed of a honeycomb sandwich panel are produced by the steps of: cutting a honeycomb material into a desired shape to obtain a honeycomb core; laminating the honeycomb core with skins made of a composite prepreg on a forming die in a sandwich form to prepare an assembly; and forming the assembly by heating under a pressure. Thus, the composite structures composed of a honeycomb sandwich panel can be produced by relatively simple processes with reduced production cost. However, such composite structures are often disadvantageous in that sufficient weight-reducing effect is not achieved.

On the other hand, the composite structures composed of a stiffened panel are produced by the steps of: laminating skins and stiffeners (stringers and frames) each made of composite prepregs on a forming die to prepare an assembly; and forming the assembly by heating under a pressure using a pressure bag, etc. The stiffened panels, particularly such that the skins and the stiffeners are integrally formed, are superior in weight-reducing effect to the honeycomb sandwich panels. However, in the case where the stiffened panel is